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*Fiber Optic Solutions  
for High-Speed Networks*

# High-power Transmitter for 10G-EPON

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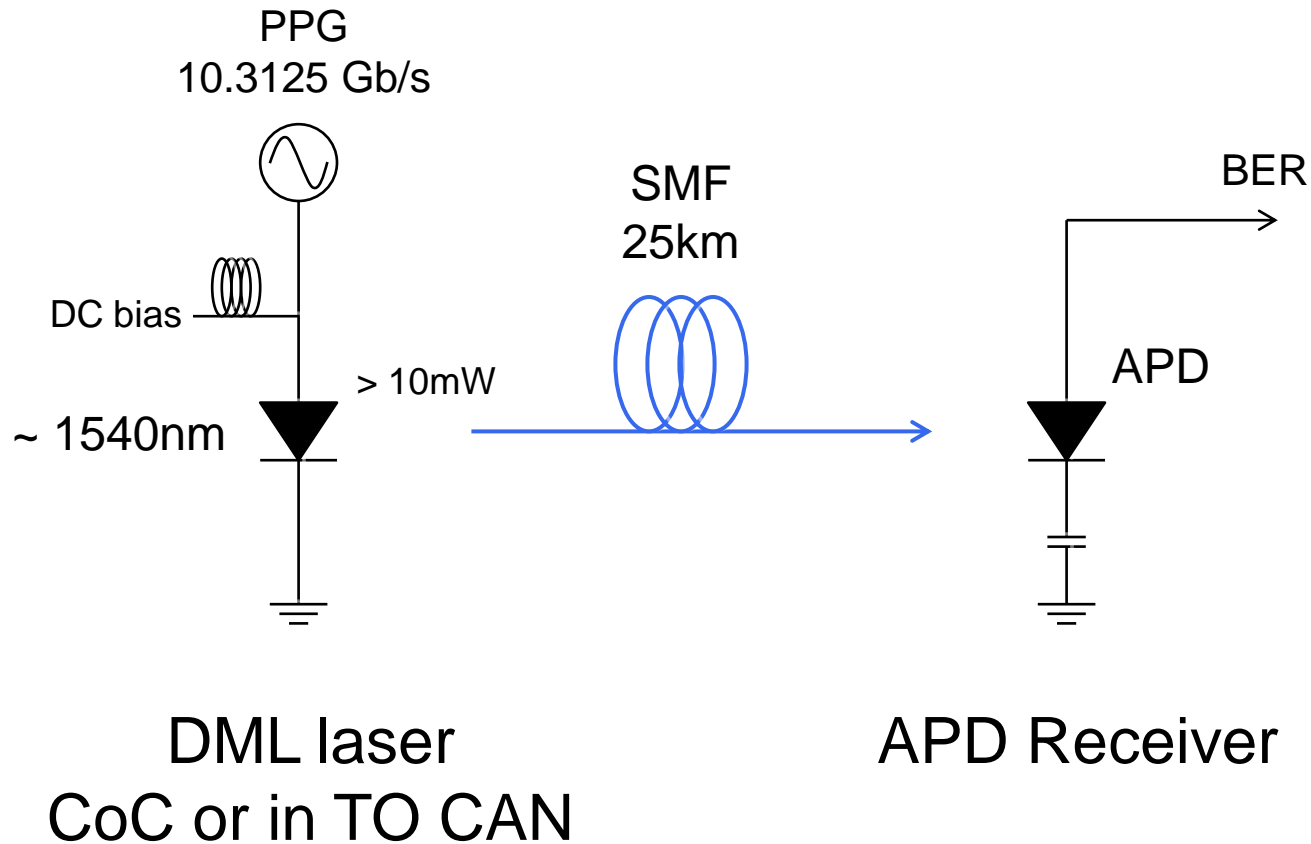
# High-power 10G PON specs

	Power	ER	Reach	Solution
<b>EPON PR(X)30</b>	2 – 5 dBm	6 dB	>20 km	EML
<b>EPON PR(X)40</b>	5 – 9 dBm	6 dB	>20 km	?
<b>EPON PR(X)50</b>	>10 dBm	6 dB	>20 km	?
XGPON N2a	4 – 8 dBm	8.2 dB	>20 km	?
XGPON N2b	> 10 dBm	8.2 dB	>20 km	?

# 10G-EPON Transmitters

- ◆ PR(X)30 ~ +2 to +5dBm output power; 29dB Max IL
  - EML
- ◆ PR(X)40 ~ +5 to +9dBm output power; 33dB Max IL
  - CML
  - EML + SOA
  - **DML**
    - *With transient chirp reduction design, good for 20km applications*
    - *Demonstrated in TO CAN package*
    - *ER ~ 7dB*
    - *Lab result shows ~10 dBm output power (ex-facet)*
  - **Monolithic DML + SOA**
    - *Lab result shows >10 dBm output power (ex-facet)*
    - *40km reach achieved in experiment*
- ◆ PR(X)50 ~ >10dBm output power; 37dB Max IL
  - **High-power DML design**
    - *Lab result shows >13dBm output power (ex-facet)*
- ◆ Long Reach Applications – 60km
  - CML
    - *High ER (10dB), high-power (10dBm), > 40km reach*

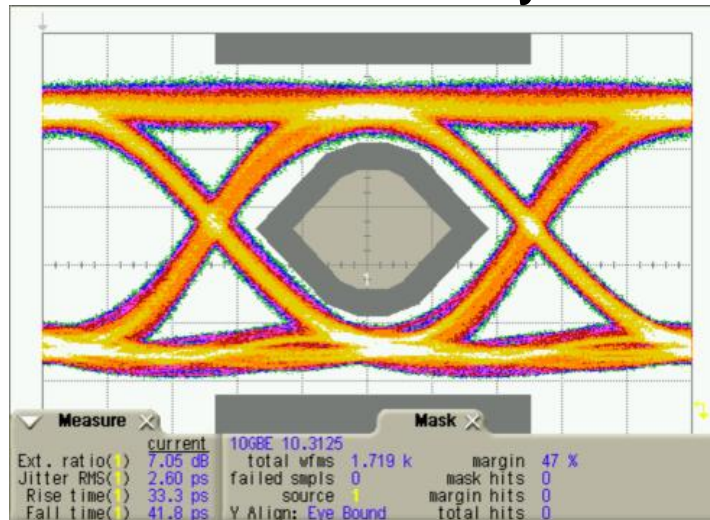
# DML Test Setup for 25km Transmission





# DML CoC for 25km Transmission

## 10.3Gb BB eye

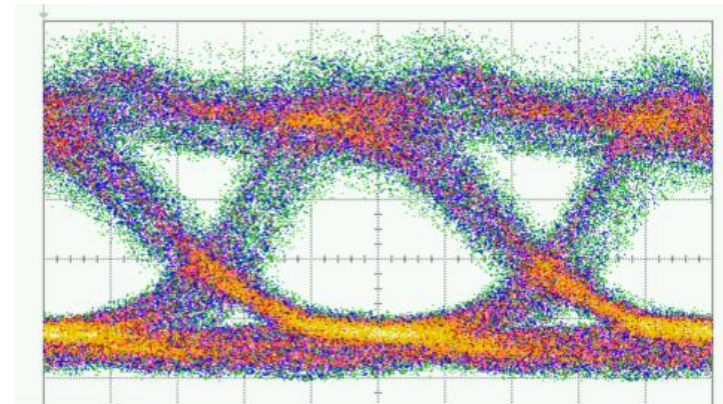


ER: 7 dB

10dBm (ex-facet)

>7dBm fiber coupled power

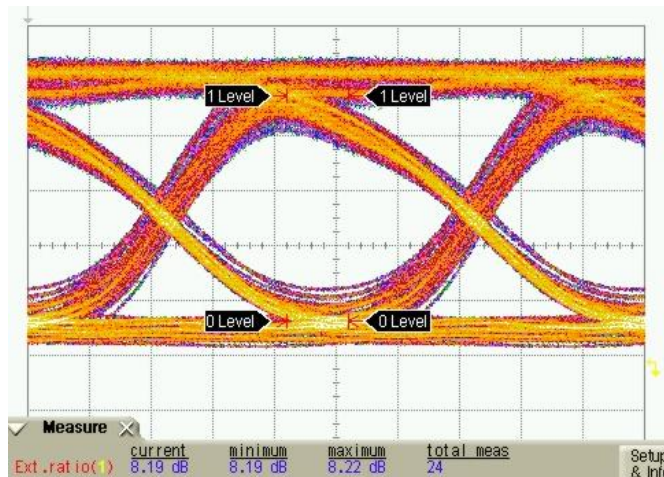
## 25km eye



Received power: -30.5dBm@BER1E-3

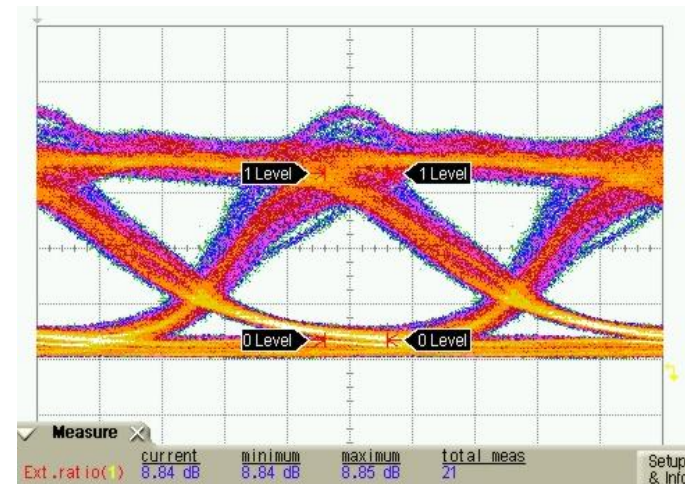
# DML+SOA CoC for 25km Transmission

BB (BT filter on)



8.2 dB ER  
>10dBm (ex-facet)

25km



8.8 dB ER  
(fiber dispersion increased ER)